

# Telecom Churn Analysis

By-

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## Problem Statement:

Orange S.A., formerly France Télécom S.A., is a French multinational telecommunications corporation. The Orange Telecom's Churn Dataset, consists of cleaned customer activity data (features), along with a churn label specifying whether a customer canceled the subscription.

Explore and analyze the data to discover key factors responsible for customer churn and come up with ways/recommendations to ensure customer retention.



## Churn in telecom industry:

“Churn” with respect to the Telecom industry, is defined as the number /percentage of subscribers moving from a specific service or a service provider to another in a given period of time.

The reasons for churn as indicated by research can be low customer satisfaction because of poor customer service or because of lack of any special services which can provide monetary benefits to the user.

High churn rates (more than 10%) year on year can lead to huge loss in revenue, decline in company's reputation which can lead to further repercussions.

## Analysis:

- 1) Network Usage across different states.
- 2) Overall and state wise churn distribution
- 3) Correlation between different features.
  - (a) Churn vs Number of Customer Service Calls
  - (b) Daytime charges vs Churn
- 4) Comparisons of different rates being charged to the customers
- 5) Voice mail plan analysis
- 6) International plan analysis

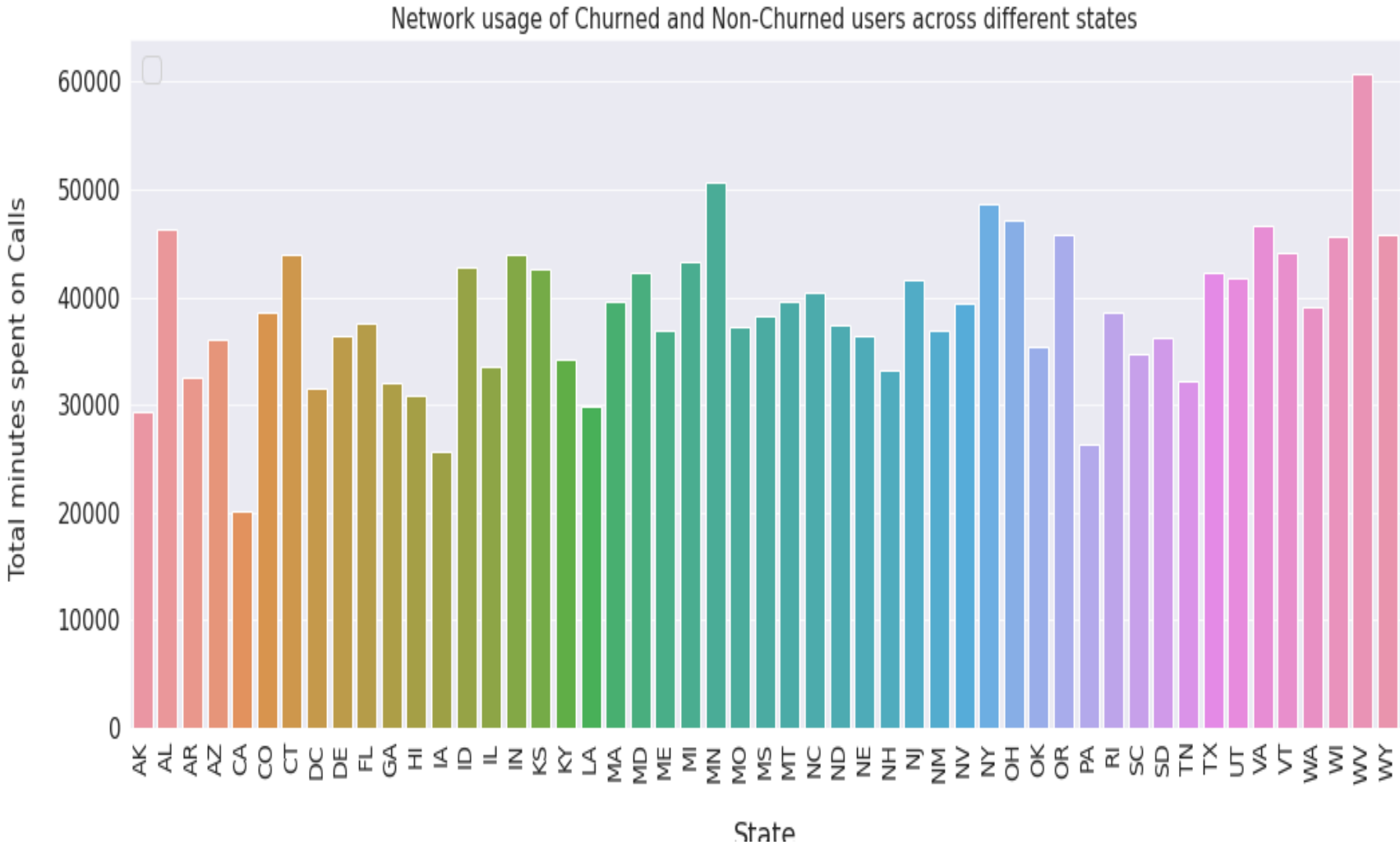


1) Usage of network among users across different states

a) West Virginia is the state with the highest usage of network

b) California is the state with the lowest usage of the network.

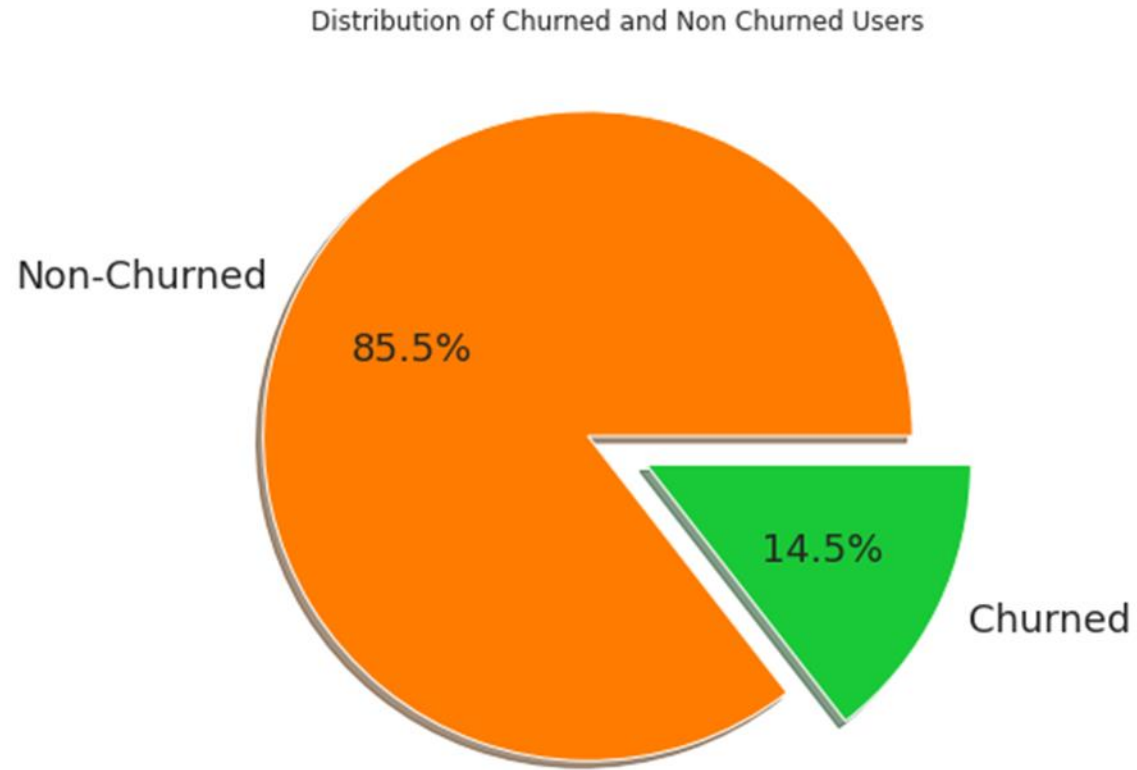
Better schemes or plans can be made for the state of California to encourage customers to spend more time on network



## ***2) Distribution of users who have left the network and those who have stayed***

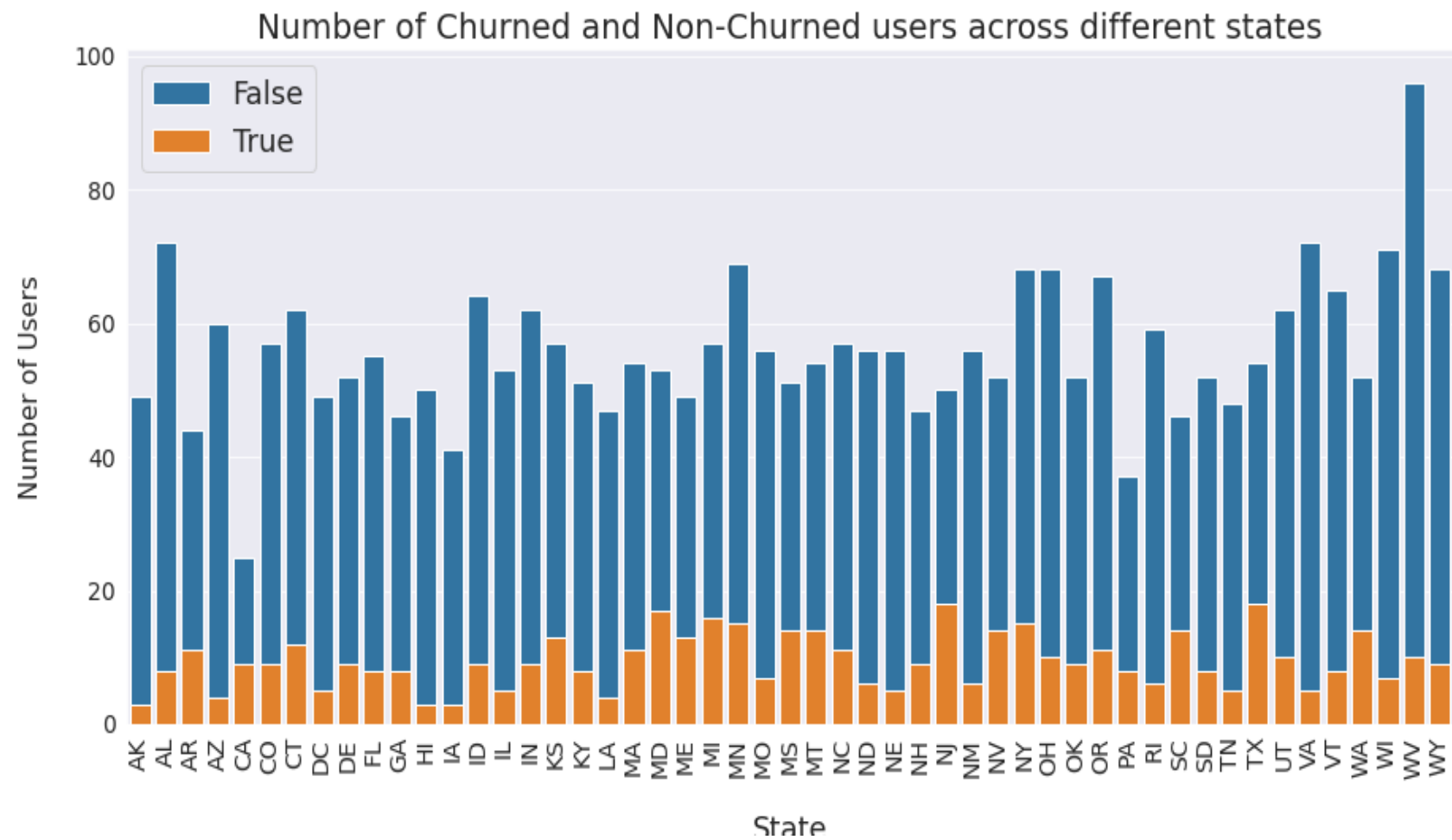
**a)** Nearly 15% of the total customers have left the network in the given period.

**b)** This indicates that the company does face a problem of high churn, which if not resolved can have negative repercussions in the future



3) What is the user churn distribution across different states ?

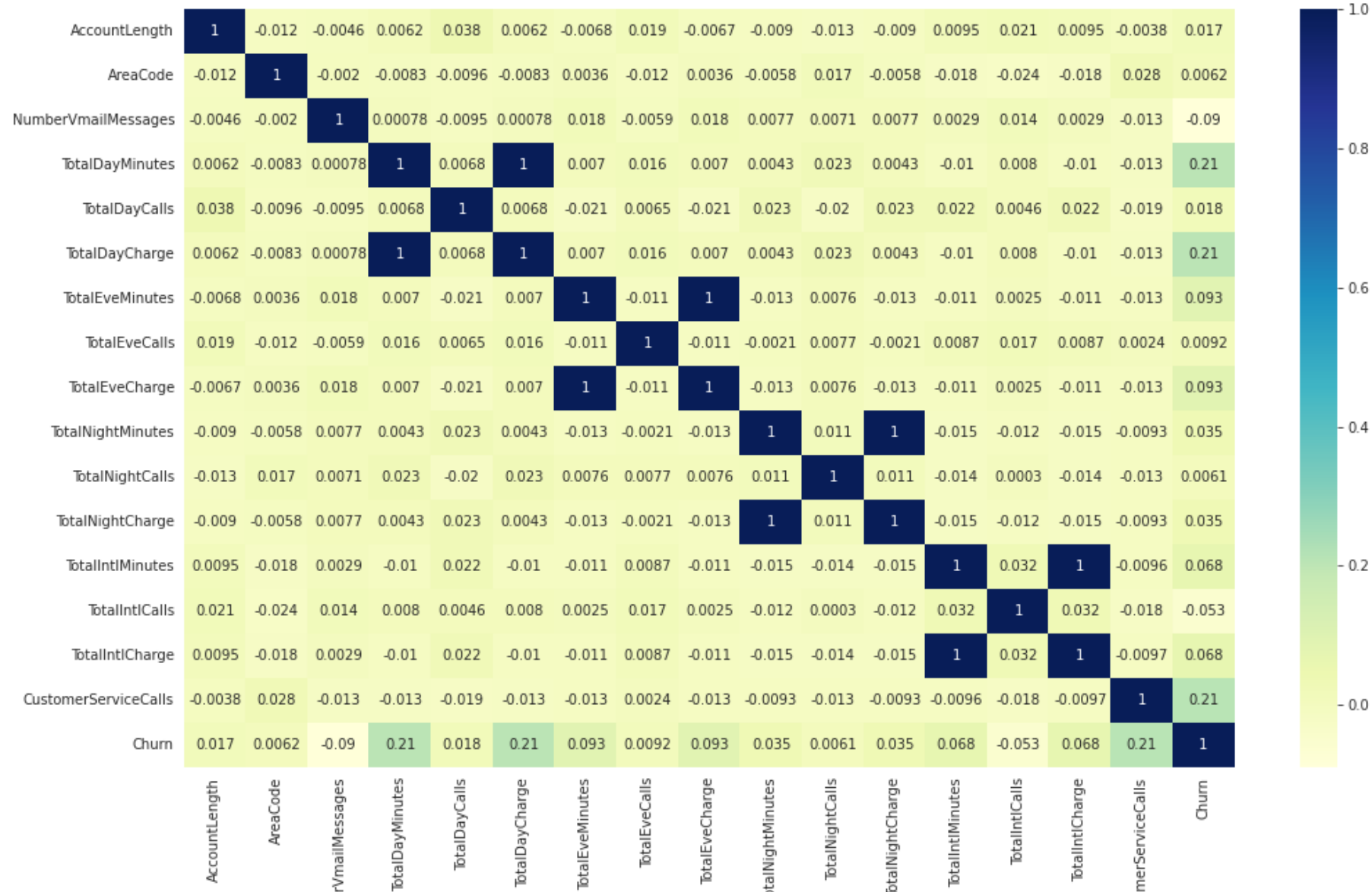
- a) The states of Maryland (MD), Michigan (MI), Minnesota (MI), New Jersey (NJ), and Texas (TX) are among the states with high user churning rates.
- b) The states of Alaska (AK), Hawaii (HI) and Idaho (ID) are among the states with low churning rates.
- c) West Virginia has the highest user retention while having low churning rates.



#### 4) What is the correlation between different features, if any ?

The correlation heatmap shows a correlation between churn and total day charges and churn and customer service calls.

These correlations will be investigated next.



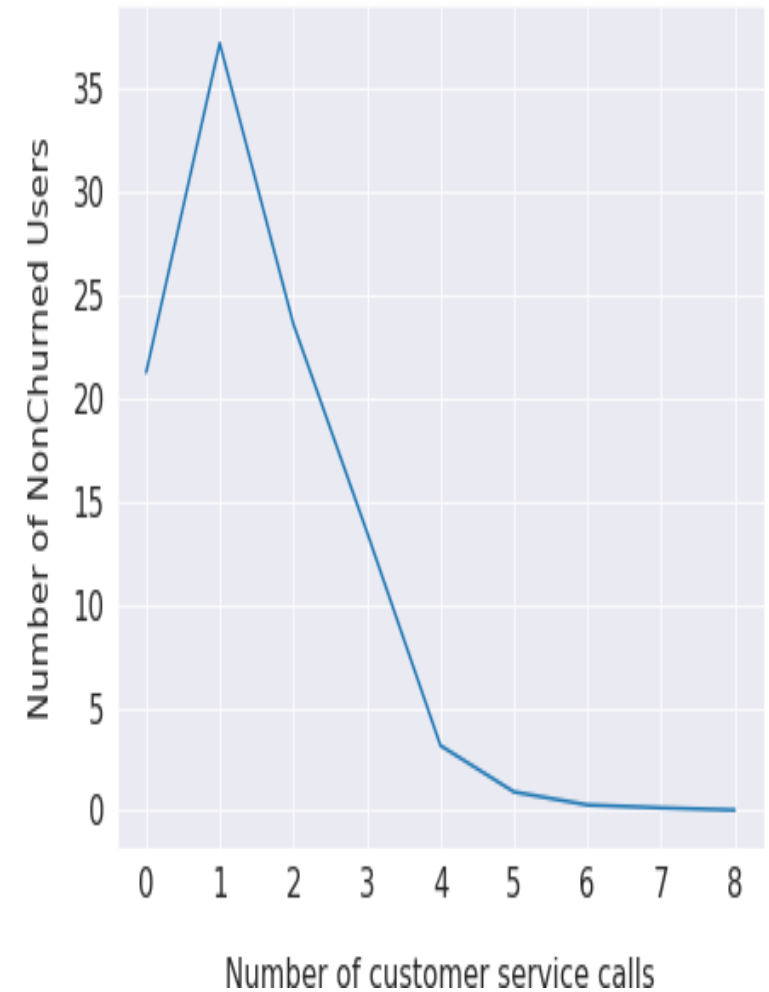
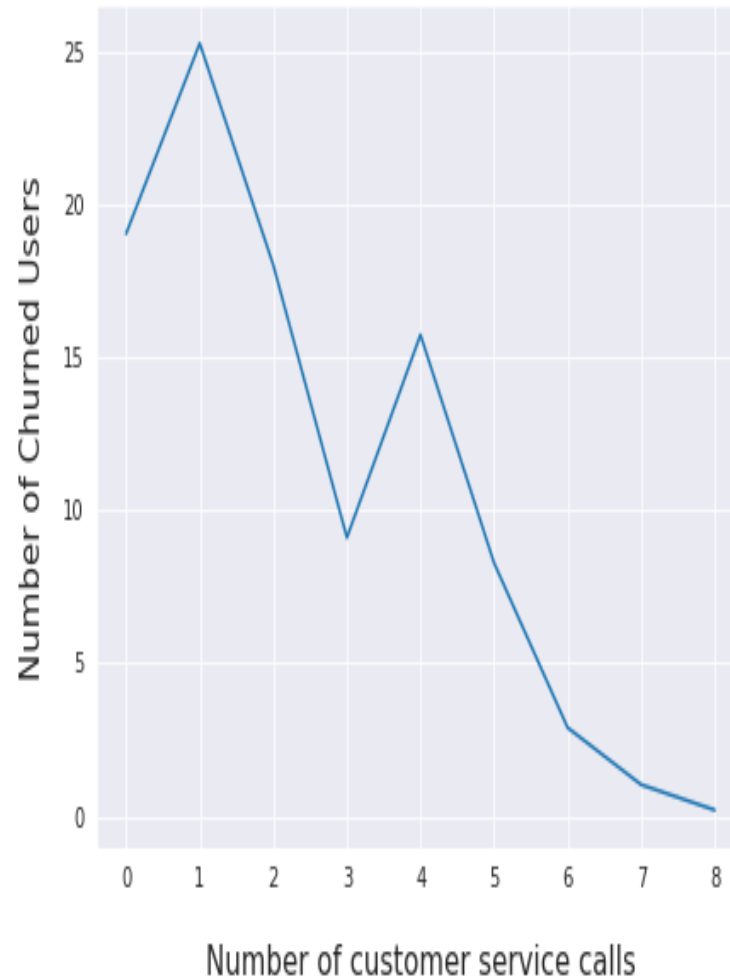


### 5) *Determining number of churned and not churned users on the basis of Customer Service Calls*

a) Customers with lower number of customer service calls have high retention, which could mean that customers who face fewer issues or customers whose problems are solved after the first call have high chances of staying with the network.

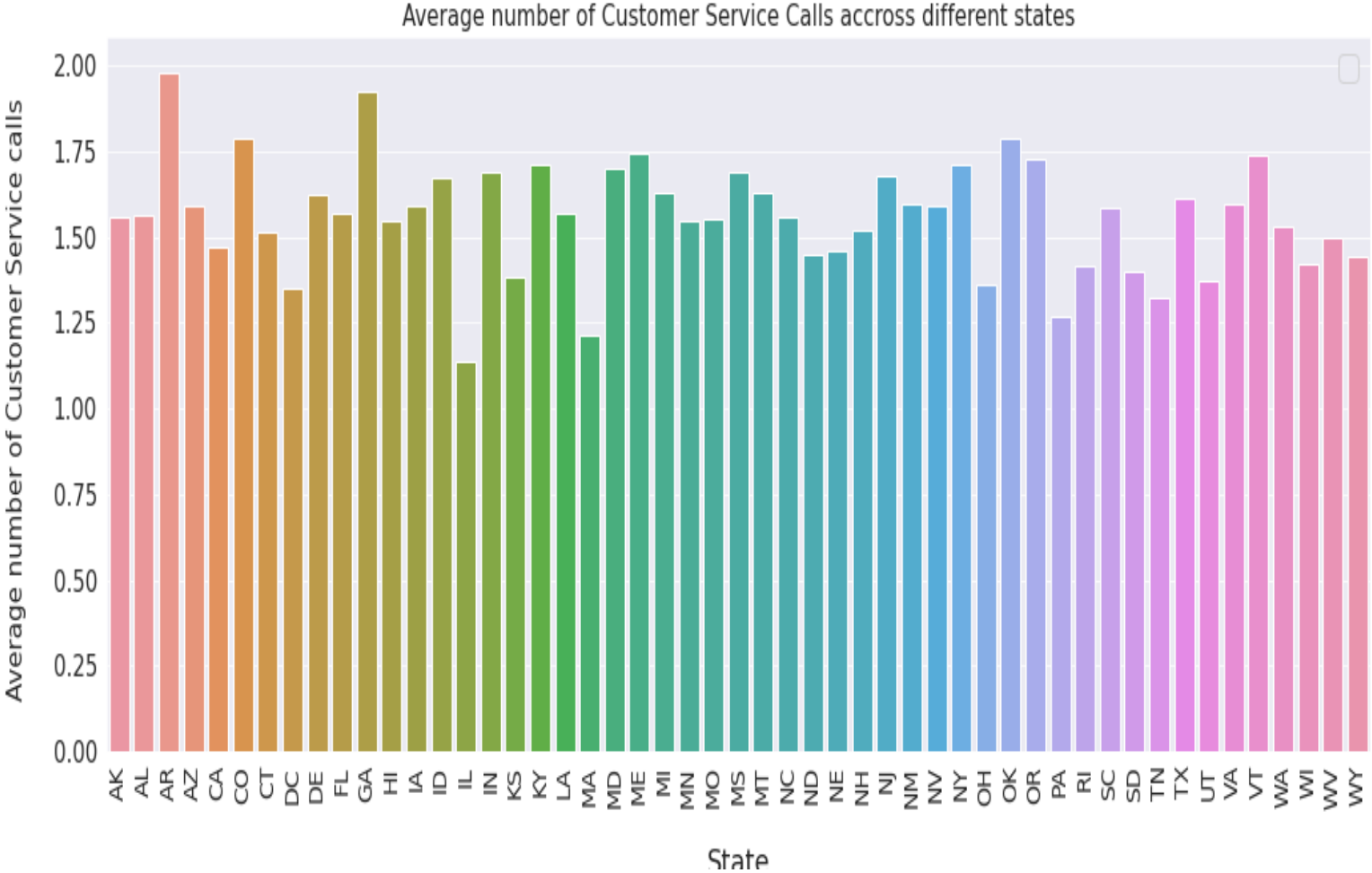
b) As the number of customer service calls increases there is a decrease in customer retention and an increase in churn rate.

Number of churn and non\_churned users vs number of customer service calls



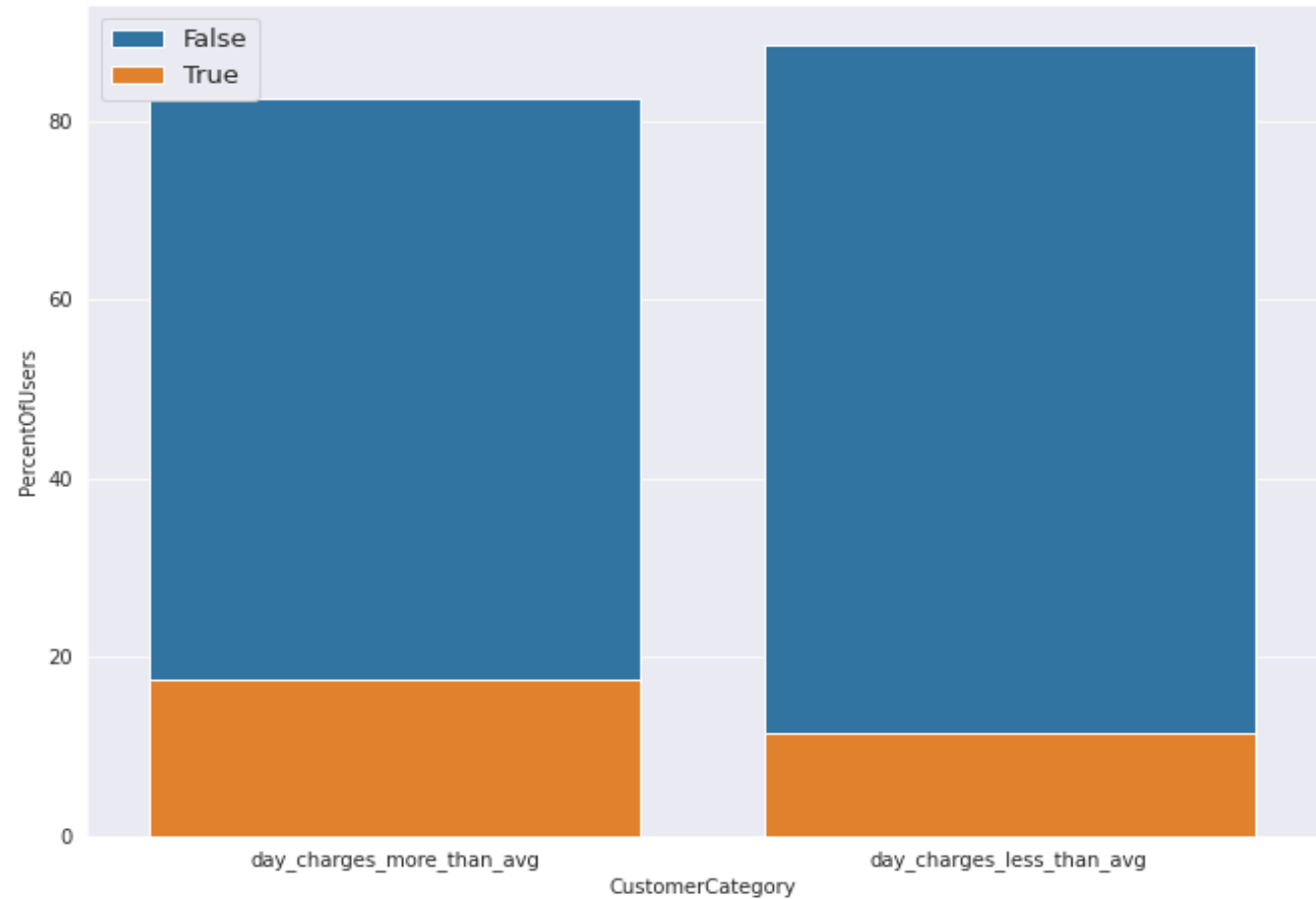
7) What is the average number of customer service calls across different states ?

- a) The states AR. GA have high average customer service calls.
- b) The customer service in these states should be looked into to prevent churn in the future.



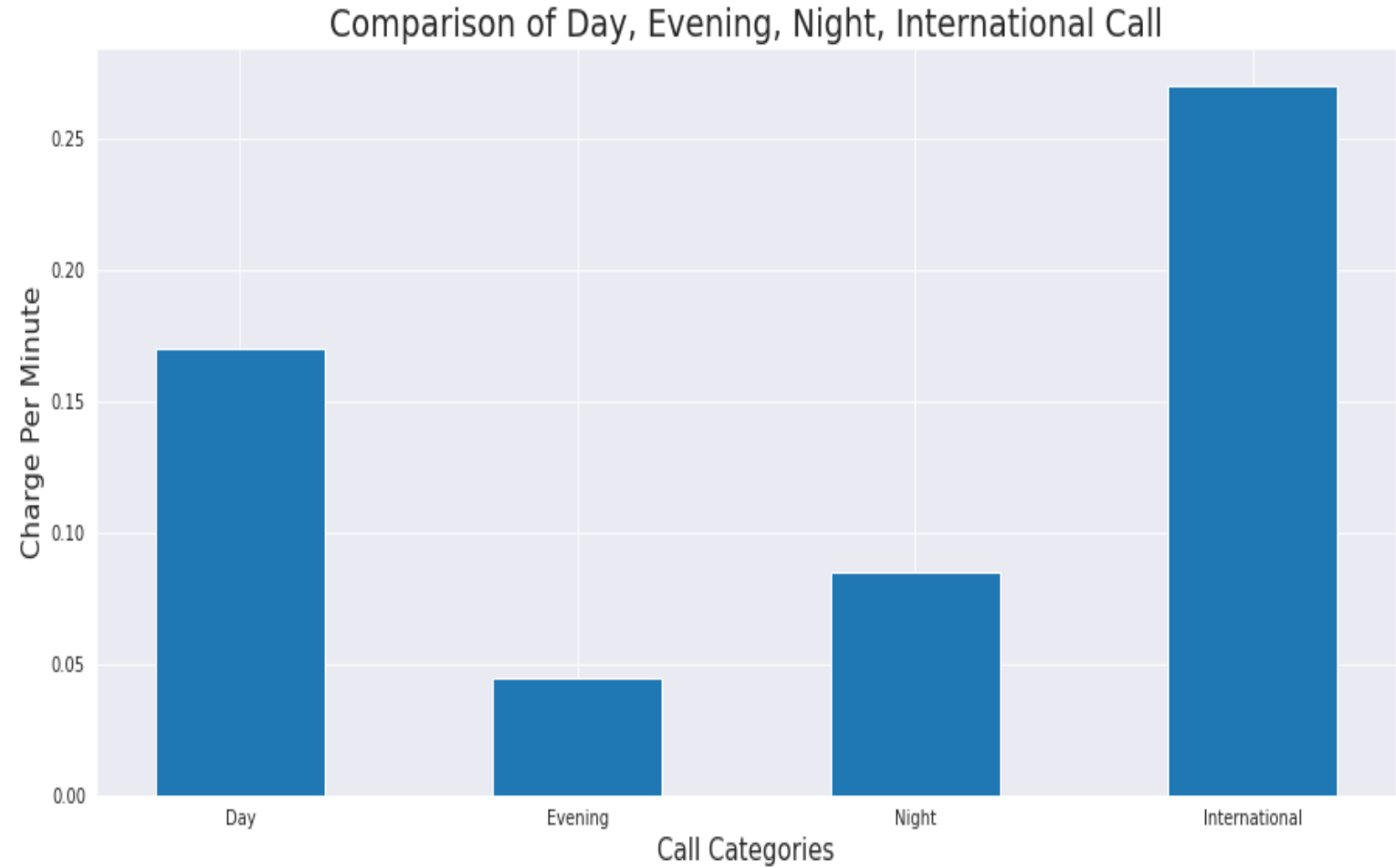
**6) Is there any relation between the percentage of churned users vs their total day charge ?**

Nearly 6% more users who spend more than the average amount on daytime calls have left the network compared to users who don't.



**7) What rates are being charged for the day, evening, and night users? , and how do they compare to rates charged for international calls?**

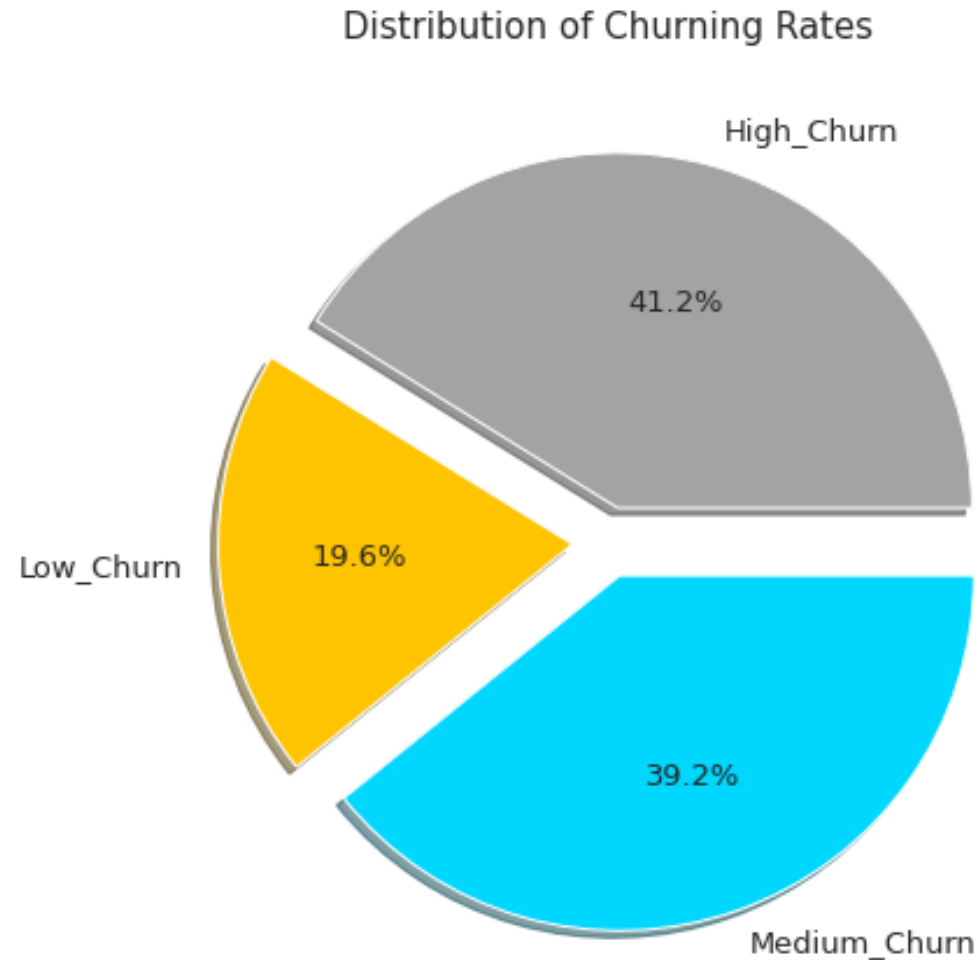
Customers are being charged nearly 3 and 4 times for their day calls as compared to night and evening calls.



**8) What are the states with high churning rates and what is the distribution among states in terms of high, medium or low churning rates**

States having more churned users than average are labeled as High\_Churn, while those with users more than the average minus the standard deviation were labeled as medium\_churn and the rest as low\_churn.

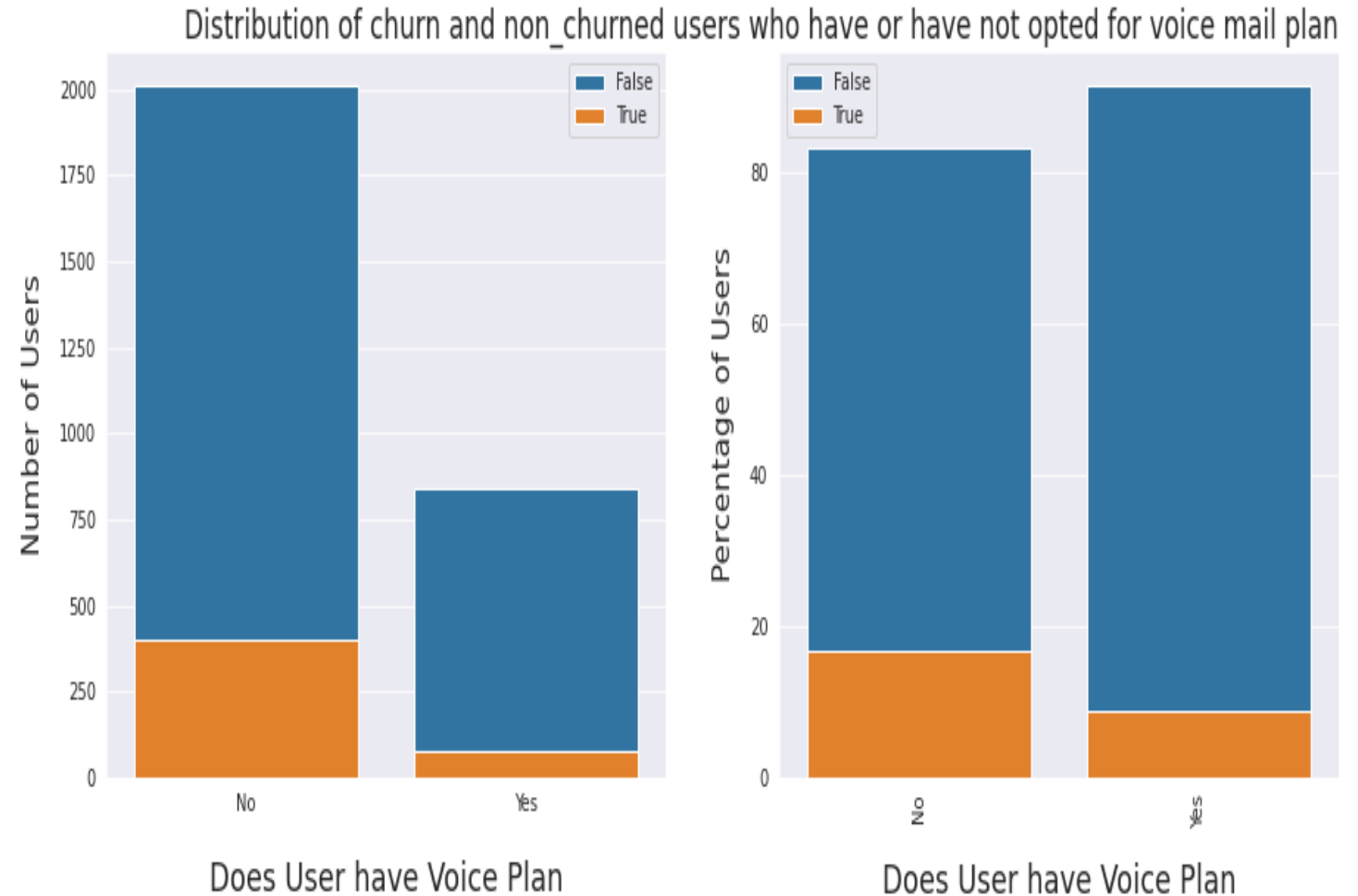
41.2% percent of the states fall in the High\_Churn category, thus indicating the severity of the problem.



**9) What is the relation of churn and non churn percentages for users who have or have not opted for voice mail ?**

**a)** Churn percentage for users who opted for the voice mail plan is half that of users who did not.

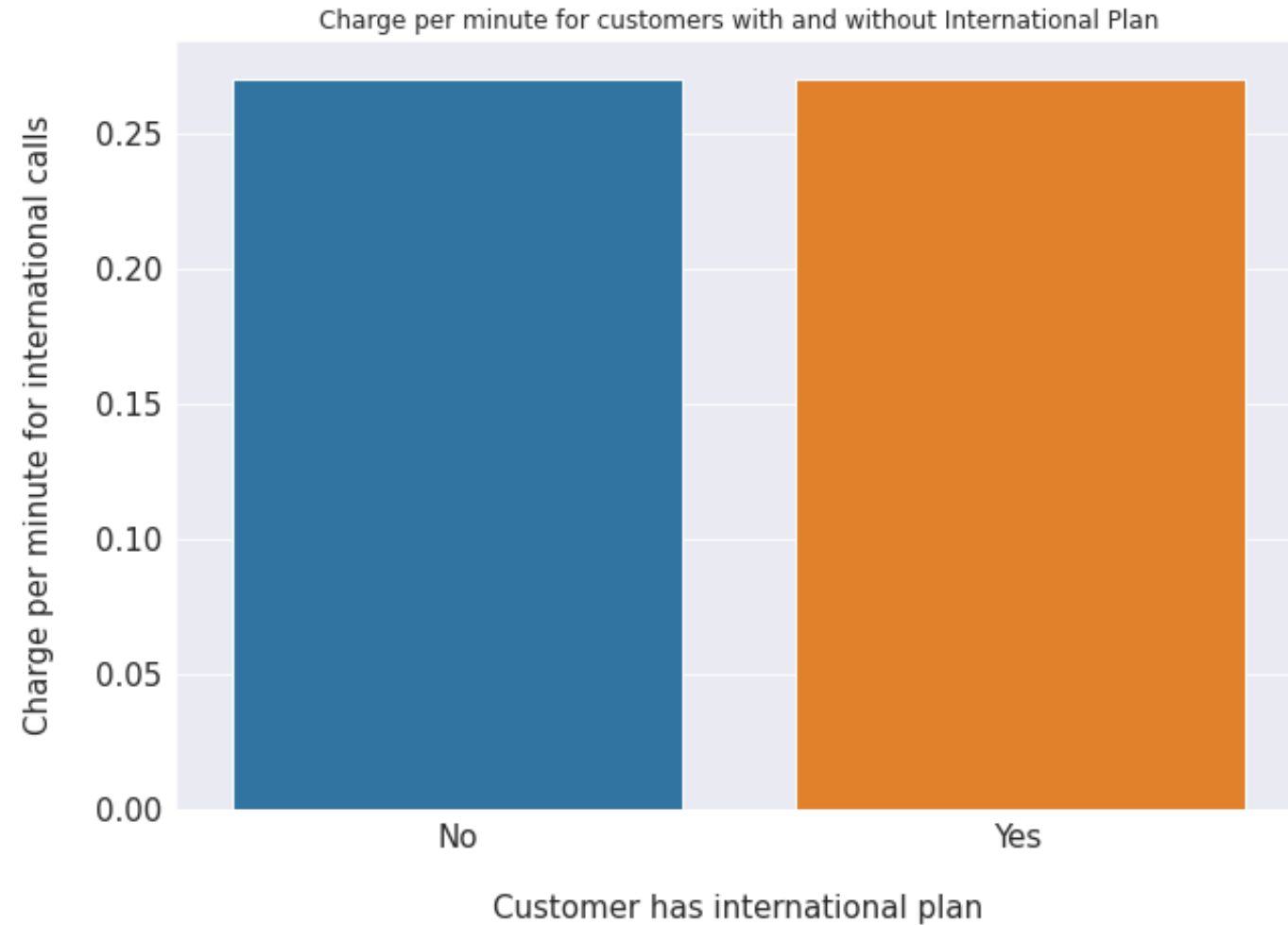
**b)** This indicates that the voice mail plan is a feature that is important for the customers and thus the company should focus on increasing it's voice mail plan subscriber rates.



**Key: What are the average rates being charged for users with international plans and those with not?**

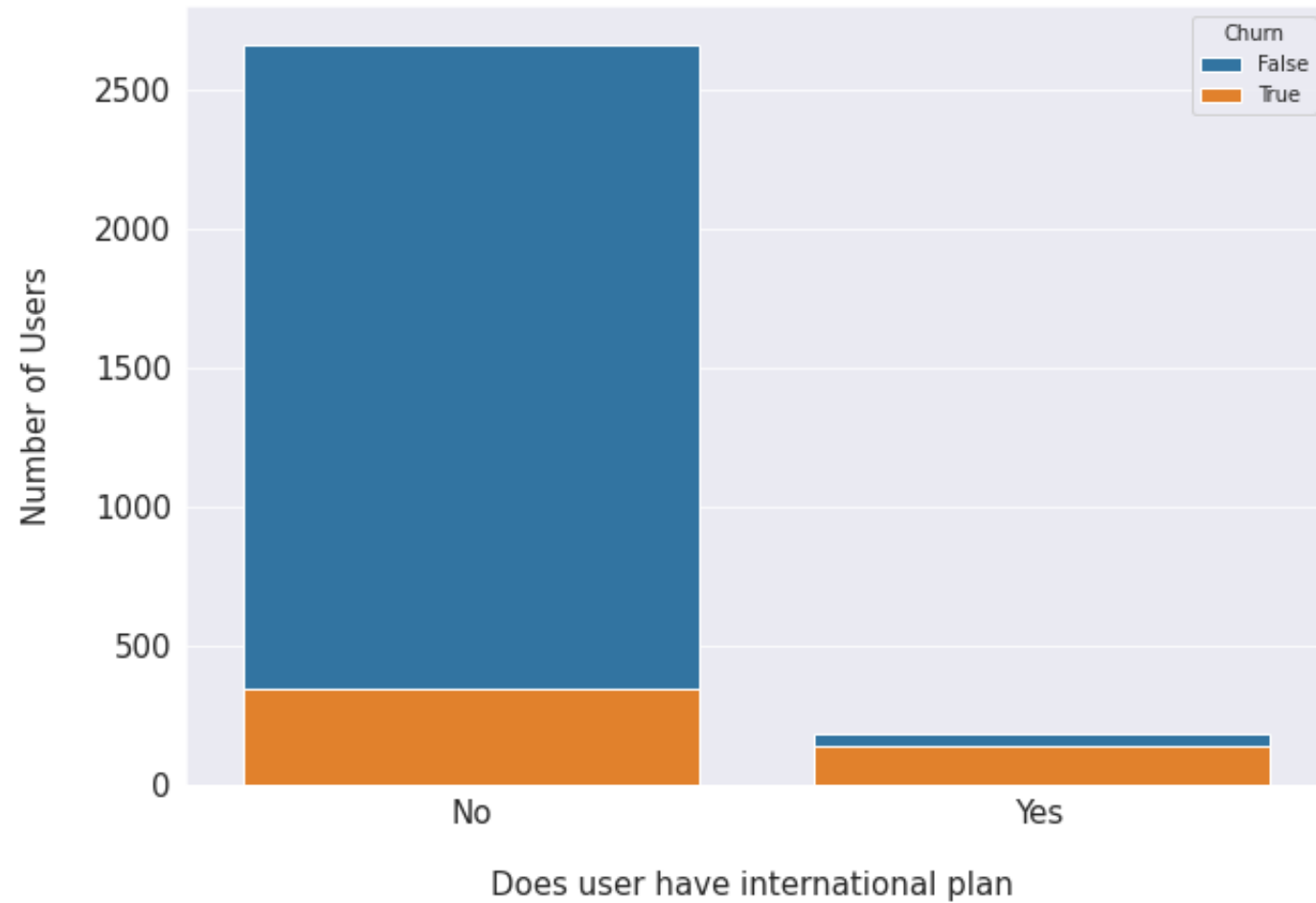
a) The customers on average, are being charged the same amount per minute for international calls irrespective of whether they opt for the international plan.

b) This issue needs to be resolved as there is no monetary benefit for the user to opt for the international plan as of now , which can lead to a decline in subscriptions and can lead to customers leaving for other service providers.



### 11) What is the churning rate among customer with or without international plans ?

The need to modify the international plan is further confirmed as nearly 40% of users who opted for the international plans ended up leaving the network





# Summary

The state of California has the least amount of network usage while the maximum usage is in the state of West Virginia.

The company has a churn rate of 14.5 %

The states of Maryland (MD), Michigan (MI), Minnesota (MI), New Jersey (NJ), and Texas (TX) are among the states with high user churning rates. while Alaska (AK), Hawaii (HI) and Idaho (ID) are among the states with low churning rates.

The data shows that customer retention decreases with increase in number of customer service calls. The states AR, GA are among the states with the highest customer service calls on average.

Customers are being charged nearly 3 and 4 times for their day calls as compared to night and evening calls and nearly 6% more users who spend more than the average amount on daytime calls have left the network compared to users who don't.

# Summary

41.2% percent of the states have higher churn count than average.

Churn percentage for users who opted for the voice mail plan is half that of users who did not.

The customers with international plans are being charged the same amount per minute as those users without the plans

Nearly 40% of users who opted for the international plans ended up leaving the network

## Proposed solutions:

- 1) The customer service executives should be trained to provide excellent service quality and should be able to resolve problems quickly (preferably in the first call) .
- 2) New attractive voice mail plans should be introduced as it leads to higher retention rate as seen in the data.
- 3) There is margin to decrease charge per minutes for day caller , as it makes the service more attractive for customers
- 4) The international plan needs to be remodelled completely to be competitive in the market and provide some monetary benefits to the existing customers and potential customers as well.

Q & A